

Claims

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- [c1] 1. A method of applying a solder filler to an aluminum body part, said method comprising the steps of:
applying a fluxing agent in past-like form to the aluminum body part;
heating the applied fluxing agent to deoxidize the surface of the aluminum body part;
applying a tin- or zinc-based solder filler to the deoxidized surface of the aluminum body part, the melting point temperature of the solder filler being at least 100 E C lower than the melting point temperature of the aluminum body part; and
heating the solder filler to bond the solder filler to the aluminum body part.
- [c2] 2. The method of claim 1, wherein the solder filler comprises by weight of 73% to 85% Sn, 3% to 5% Zn, and 12% to 22% Cu.
- [c3] 3. The method of claim 1, wherein the solder filler comprises by weight of 55% to 85% Sn, 12% to 40% Zn, and 3% to 5% of an element selected from the group consisting of Cu, Fe, Co, and Ni.
- [c4] 4. The method of claim 1, wherein the solder filler comprises by weight of 78% to 98% Zn and 2% to 22% Al.
- [c5] 5. The method of claim 2 wherein the solder filler comprises by weight of 77% Sn, 3% Zn, and 20% Cu.
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- [c6] 6. The method of claim 3 wherein the solder filler consists of, by weight, 66.5% Sn, 30% Zn, and 3.5% Ni.
- [c7] 7. The method of claim 4 wherein the solder filler consists of by weight of 80% Zn and 20% Al.
- [c8] 8. The method of claim 1 further comprises washing the aluminum body part to remove flux residue created during the heating step.
- [c9] 9. The method of claim 1 wherein the fluxing agent is comprised of a combination of organic compounds and metallic salts.

[c10] 10. The method of claim 1 wherein the fluxing agent is comprised of a combination of complex organometallic salts.

[c11] 11. A method of applying a solder filler to an aluminum body part comprising the steps of:
forming a filler/flux mixture comprising a solder filler for aluminum body parts and a fluxing agent wherein the melting point temperature of the solder filler is at least 100 E C lower than the melting point temperature of the aluminum body part;
applying the filler/flux mixture to the aluminum body part; and
heating the filler/flux mixture to bond the solder filler to the aluminum body part.

[c12] 12. The method of claim 11 wherein the solder filler comprised by weight of 73% to 85% Sn, 3% to 5% Zn, and 12% to 22% Cu.

[c13] 13. The method of claim 11 wherein the solder filler comprised by weight of 55% to 85% Sn, 12% to 40% Zn, and 3% to 5% of an element selected from the group consisting of Cu, Fe, Co, and Ni.

[c14] 14. The method of claim 11 wherein the solder filler comprised by weight of 78% to 98% Zn and 2% to 22% Al.

[c15] 15. The method of claim 11 wherein the fluxing agent is comprised of a combination of organic compounds and metallic salts.

[c16] 16. The method of claim 11 wherein the fluxing agent is comprised of a combination of complex organometallic salts.

[c17] 17. The method of claim 11 wherein the filler/flux mixture is comprised of by weight about 10% of the fluxing agent and about 90% of a tin based solder filler.

[c18] 18. The method of claim 11 wherein the filler/flux mixture is comprised of by weight about 50% of the fluxing agent and about 50% of a zinc-based filler.

[c19] 19. A solder filler for aluminum body parts consisting by weight of 81% to 85% Sn, 3% to 5% Zn, and 12% to 14% Cu.

20. A solder filler for aluminum body parts consisted by weight of 55% to 85% Sn, 12% to 40% Zn, and 3% to 5% Ni, Fe or Co.

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